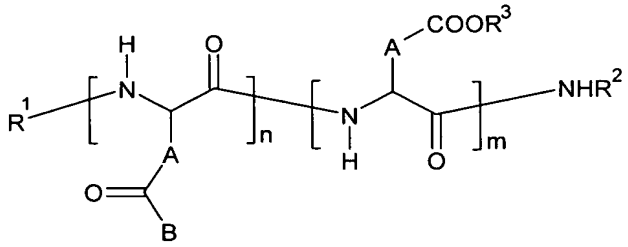
CLAIMS

1. Polyamino acid comprising aspartic units and/or glutamic units, some of which carry at least one graft, characterized in that:

- at least one of these grafts is bonded to an aspartic or glutamic unit via an amide linkage,
- at least some of these grafts comprising one or more (oligo)amino acids, excluding the grafts carrying at least one carboxylic diacid cyclizable to an anhydride,
- and the "amino acid" unit(s) in the (oligo)amino acid is (are) selected from those having an alkyl or aryl group in the alpha position, and preferably from those belonging to the group comprising alanine, valine, leucine, isoleucine and phenylalanine.

2. Polyamino acid according to claim 1, characterized in that the oligoamino acid or (oligo)amino acids consists (each consist) of mutually identical "amino acid" units.

3. Polyamino acid according to claim 1 or 2, characterized by general formula **(I)** below:

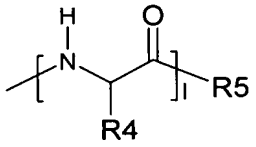


(I)

in which:

- R^1 is H, a linear C2 to C10 alkyl or branched C3 to C10 alkyl, a benzyl or a terminal "amino acid" unit;
- R^2 is H, a linear C2 to C10 acyl or branched C3 to C10 acyl group or a pyroglutamate;

- R^3 is H or a cationic entity preferably selected from the group comprising:
  - metal cations advantageously selected from the subgroup comprising sodium, potassium, calcium and magnesium,
  - organic cations advantageously selected from the subgroup comprising:
    - cations based on amine,
    - cations based on oligoamine,
    - cations based on polyamine (polyethylenimine being particularly preferred),
    - and cations based on amino acid(s) advantageously selected from the class comprising cations based on lysine or arginine,
  - and cationic polyamino acids advantageously selected from the subgroup comprising polylysine and oligolysine;
- the n groups B independently of one another are each a monovalent radical of the following formula:



(B)

in which:

- R^4 is a methyl (alanine), isopropyl (valine), isobutyl (leucine), sec-butyl (isoleucine) or benzyl (phenylalanine);
- and R^5 is a group selected from OH, NH_2, a C1 to C5 alkoxy group and a benzyloxy;
- A independently is $-CH_2-$ (aspartic unit) or $-CH_2-CH_2-$ (glutamic unit);
- n/(n + m) is defined as the molar grafting rate and varies from 0.5 to 100 mol%;
- n + m varies from 3 to 1000 and preferably between 30 and 300;

- and l varies from 1 to 6.

4. Polyamino acid according to claim 1, characterized in that all the amino acids constituting the (oligo)amino acid are of the L type.

5. Polyamino acid according to claim 1, characterized in that it consists of an alpha-L-glutamate or alpha-L-glutamic homopolymer.

6. Polyamino acids according to claim 1, characterized in that it consists of an alpha-L-aspartate or alpha-L-aspartic homopolymer.

7. Polyamino acid according to claim 1, characterized in that it consists of an alpha-L-aspartate/alpha-L-glutamate or alpha-L-aspartic/alpha-L-glutamic copolymer.

8. Polyamino acid according to claim 1, characterized in that the distribution of the aspartic and/or glutamic units carrying grafts is such that the resulting polymers are either random or of the block type or of the multiblock type.

9. Polyamino acid according to claim 1, characterized in that its molecular weight is between 2000 and 100,000 g/mol and preferably between 5000 and 40,000 g/mol.

10. Polyamino acid according to claim 1, characterized in that the molar grafting rate is between 2 and 70% and preferably between 5 and 40%.

11. Pharmaceutical, cosmetic, dietetic or phytosanitary composition comprising at least one polyamino acid according to claim 1.

12. Composition according to claim 11, characterized in that it comprises at least one active principle.

13. Pharmaceutical, cosmetic, dietetic or phytosanitary composition according to claim 11 in particular, comprising at least one polyamino acid containing

aspartic units and/or glutamic units, some of which carry at least one graft:

- at least one of these grafts being bonded to an aspartic or glutamic unit via an amide linkage,
- at least some of these grafts comprising one or more (oligo)amino acids,
- and the grafts carrying at least one carboxylic diacid cyclizable to an anhydride being excluded,

characterized in that it comprises at least one active principle associated with the polyamino acid(s) by one or more bonds other than one or more covalent chemical bonds.

14. Composition according to claim 12 or 13, characterized in that the active principle is a protein, a glycoprotein, a protein bonded to one or more polyalkylene glycol chains {preferably polyethylene glycol (PEG) chains: "PEGylated protein"}, a polysaccharide, a liposaccharide, an oligonucleotide, a polynucleotide or a peptide.

15. Composition according to claim 12 or 13, characterized in that the active principle is a small hydrophobic, hydrophilic or amphiphilic organic molecule.

16. Composition according to claim 11, 12 or 13, characterized in that it can be administered by the oral, parenteral, nasal, vaginal, ocular, subcutaneous, intravenous, intramuscular, intradermal, intraperitoneal, intracerebral or buccal route.

17. Composition according to claim 11, 12 or 13, characterized in that it is in the form of a gel, an emulsion, micelles, nanoparticles, microparticles, a powder or a film.

18. Composition according to claim 11, 12 or 13, characterized in that it is a colloidal suspension of nanoparticles and/or microparticles and/or micelles of polyamino acids in an aqueous phase.

19. Composition according to claim 11, 12 or 13, characterized in that it is in the form of a solution in a biocompatible solvent and in that it can be injected by the subcutaneous or intramuscular route or into a tumor.

20. Composition according to claim 11, 12 or 13, characterized in that it is capable of forming a deposit at the injection site.

21. Process for the preparation of:

- drugs, particularly for administration by the oral, nasal, vaginal, ocular, subcutaneous, intravenous, intramuscular, intradermal, intraperitoneal or intracerebral route, it being possible in particular for the active principles of these drugs to be proteins, glycoproteins, proteins bonded to one or more polyalkylene glycol chains {e.g. polyethylene glycol (PEG) chains, in which case the term "PEGylated" proteins is used}, peptides, polysaccharides, liposaccharides, oligonucleotides, polynucleotides and small hydrophobic, hydrophilic or amphiphilic organic molecules;
- and/or nutriments;
- and/or cosmetic or phytosanitary products,

characterized in that it consists essentially in using at least one polyamino acid according to claim 1 and/or the composition according to claim 11, 12 or 13.